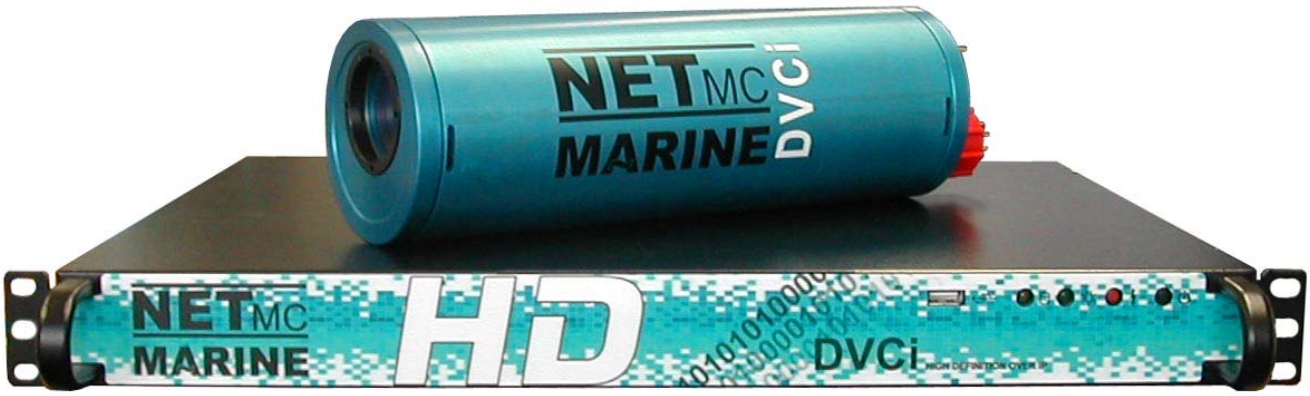
USER GUIDE FOR NETmc MARINE ***DVCi-HD Video System***



Rev. 2.1
Firmware v1.4.1
August 2014

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1. Introduction

The NETmc Marine ***DVCi-HD Video System*** is an exciting new concept in High-Definition video recording for offshore inspection and ROV / diver operations.

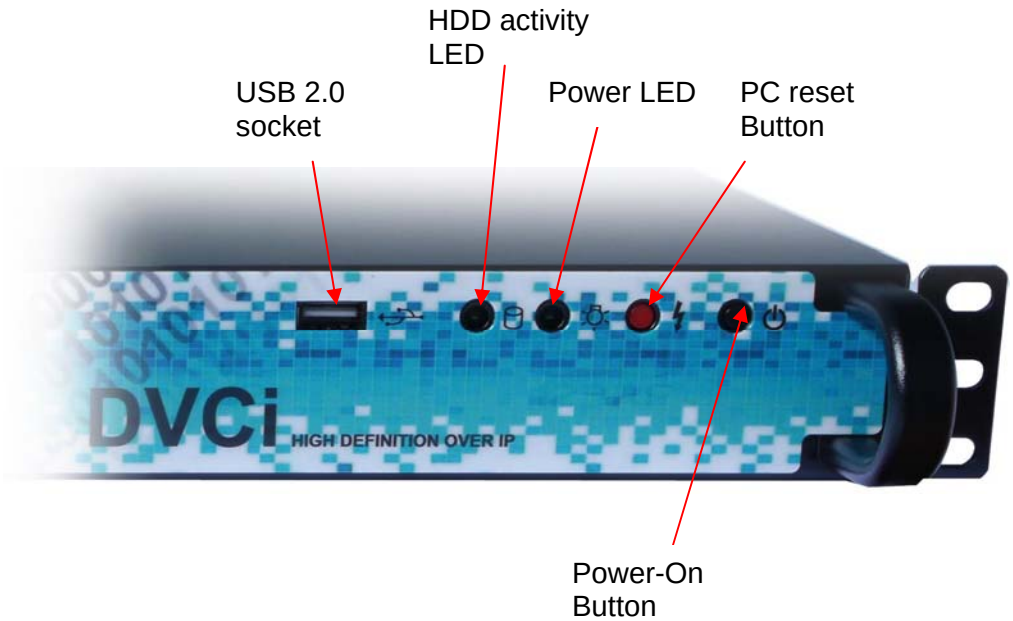
Current HD systems are based on broadcast studio level technology - running HD-SDI signals at over a gigabit between expensive (£1200+) connectors, requiring the latest fibre muxes, umbilicals and slipring technologies to bring a signal into the control area - where monitors and distribution all have to upgraded to get the client what they want - inspection with an HD deliverable.

DVCi-HD comes as a complete subsea camera and topside recording system. Video is encoded subsea and sent to the topside box for control and file creation. Using the latest H264 compression, the data from the camera is so small it can be carried up a disused video coax cable.

The topside software will be familiar to users of our inspection systems - as the interface is very similar to the DVRi - and can therefore also be controlled by 3rd party inspection software.

2. Hardware Description and Connections

2.1 Front of the DVCi topbox



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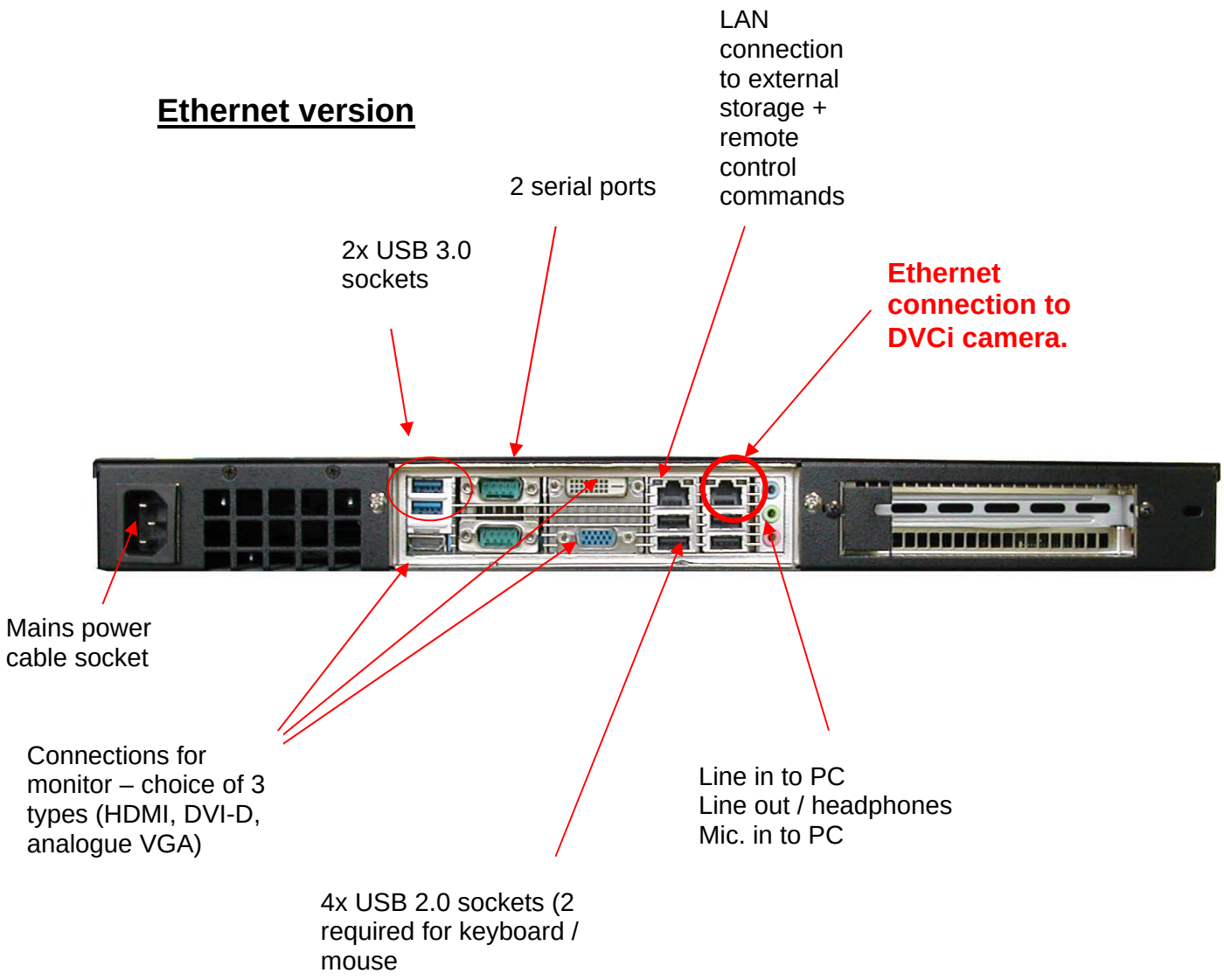
2.2 Back of the DVCi top box

Ethernet version


LAN connection to external storage + remote control commands
2 serial ports
2x USB 3.0 sockets
Ethernet connection to DVCi camera.
Mains power cable socket
Connections for monitor – choice of 3 types (HDMI, DVI-D, analogue VGA)
4x USB 2.0 sockets (2 required for keyboard / mouse
Line in to PC
Line out / headphones
Mic. in to PC

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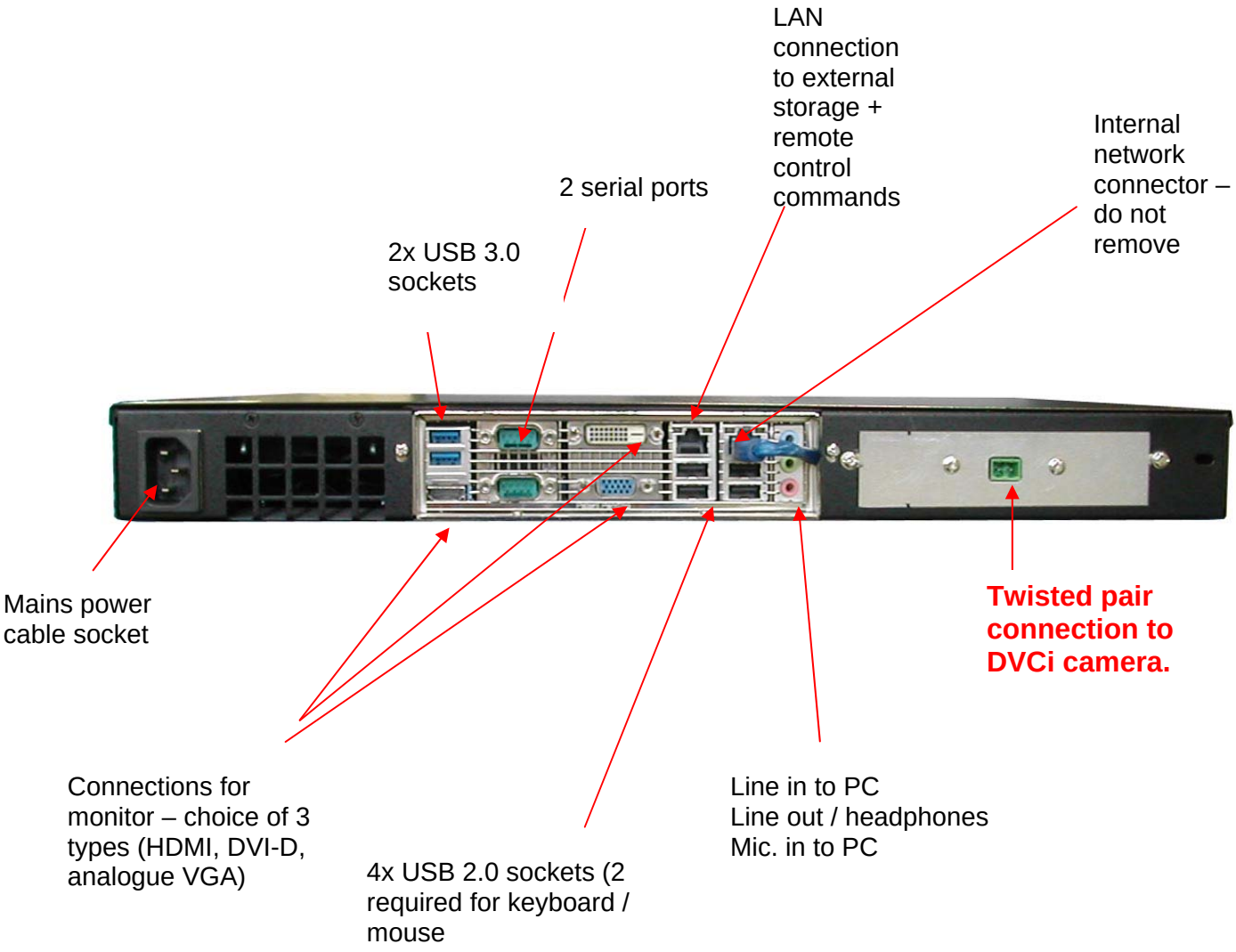
Twisted pair version


LAN connection to external storage + remote control commands
Internal network connector – do not remove
2 serial ports
2x USB 3.0 sockets
Mains power cable socket
Twisted pair connection to DVCi camera.
Connections for monitor – choice of 3 types (HDMI, DVI-D, analogue VGA)
4x USB 2.0 sockets (2 required for keyboard / mouse
Line in to PC
Line out / headphones
Mic. in to PC

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2.3 DVCi camera

Rear of camera - Ethernet version

Connects to Subconn DIL8F

Twisted pair version

Connects to Subconn MCIL2F

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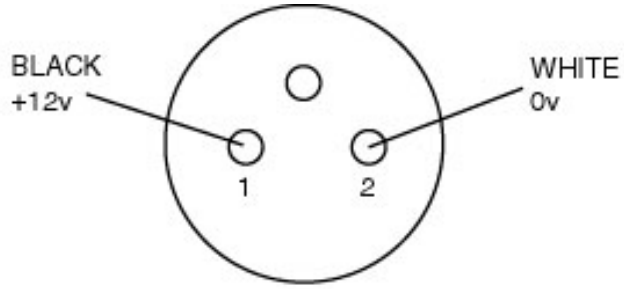
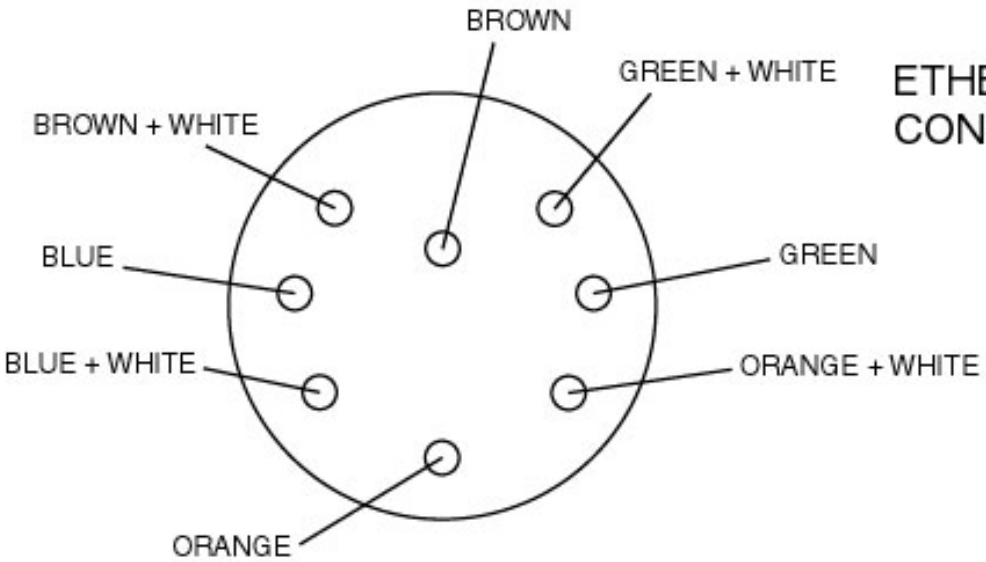
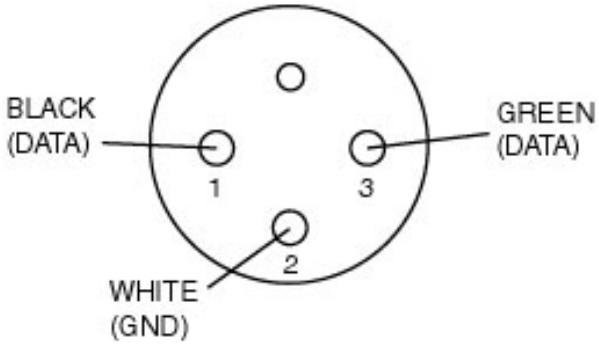
3. Connector pin-outs



CAMERA
POWER



ETHERNET
CONNECTOR



TWP
CONVERTER

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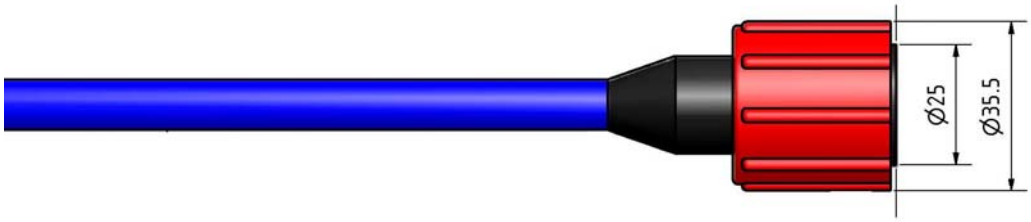
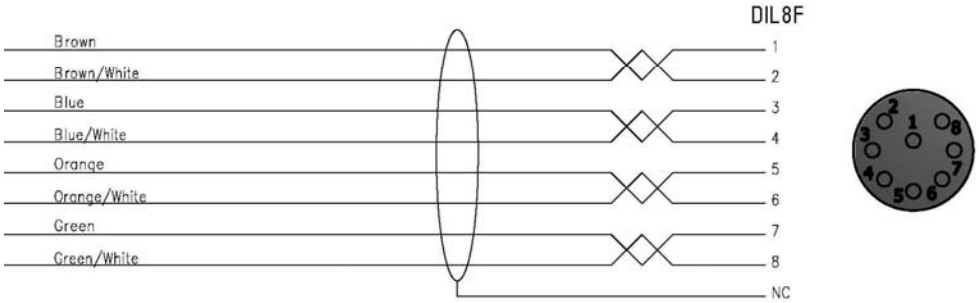
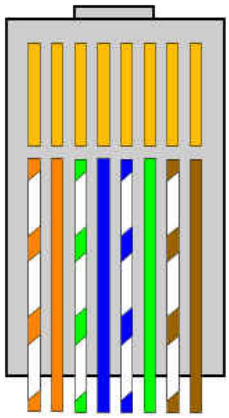
Ethernet version







NOTE:
The LAN connector has 8 wires, designed for full gigabit networking.
The ***DVCi*** will function with 10/100 networking, so:

Minimum connection is:

Orange	5	(Rx -)
White / Orange	6	(Rx+)
Green	7	(Tx -)
White / Green	8	(Tx +)

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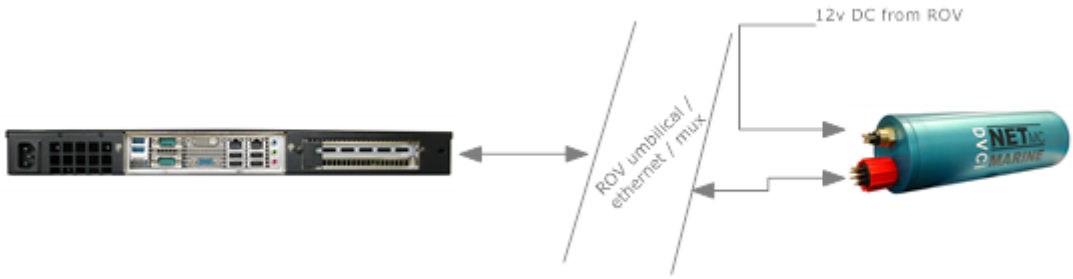
4. Set-up

It is important to plug in all video connections before switching on the *DVCi-HD video system.*

THIS EQUIPMENT MUST BE EARTHED.

1. Mount the ***DVCi controller box*** in a suitable rack mount system.
2. Connect the power supply. **Note: this unit must be earthed**. Note (2): we highly recommend connection to a UPS (uninterruptible power supply) to prevent data loss.
3. Connect keyboard / mouse / monitor
4. Connect camera to topside by direct cable or via ROV mux/ethernet system



5. Power up the unit
6. Launch ***DVCi*** software from desktop icon.
7. Live video images should be displayed on screen.

5. Recording

A shortcut on the desktop will launch the software which controls the ***DVCi-HD video system.***

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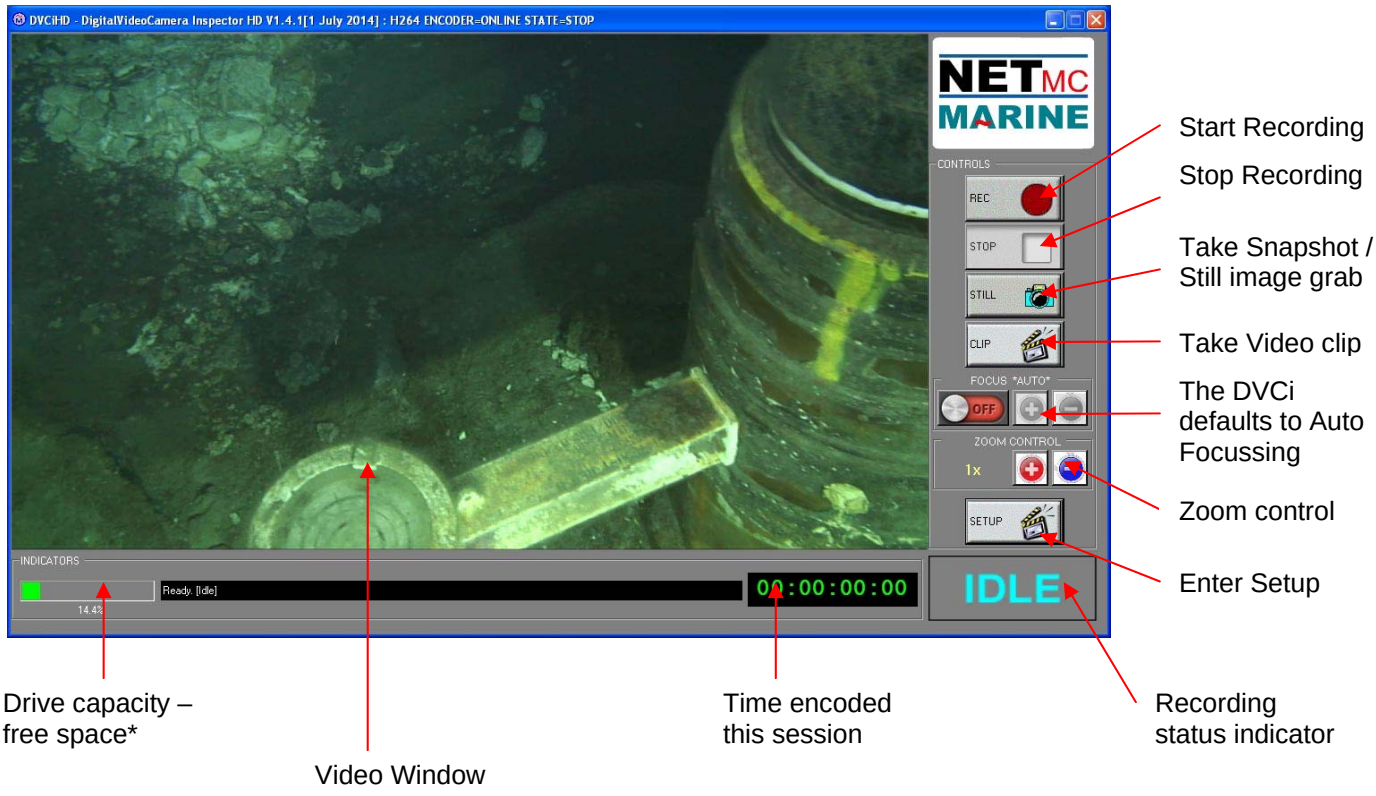
Once the program has started, the operation controls are displayed.
From here the user can start and stop recording, take still images (snapshots) and/ or video clips and enter the set-up screen.



*** Drive Capacity**
Note that this display changes colour according to how much disk space is free:
The display is:

- Green if more than 25% of the disk is free.
- Orange if between 10% and 25% of the disk is free
- Red if less than 10% of the disk is free.

To start the recording, simply click on the RECORD button.

When recording has started, the status indicator changes to “REC” instead of “IDLE”, the REC button will become depressed and the minute counter will start to increment.
The image on the screen shows the video signal that is being input to the ***DVCi-HD video system***.

Once the desired footage has been recorded, simply click on the STOP button to end recording.

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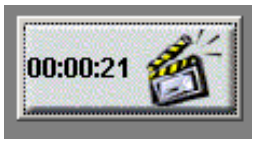
At any point during the recording or preview, the image on the screen can be saved as a jpg file by clicking the STILL button.

To resume logging, simply click the RECORD button again.
The system will automatically create a new file, automatically named as per the configuration in the SETUP page.

Similarly, live video clips can be taken at any point during the recording or preview by clicking the CLIP button.

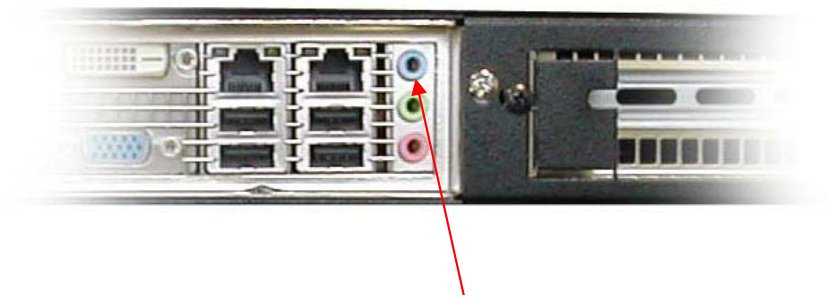
The clip will continue to grow until the CLIP button is pressed again. An incrementing timer will be displayed on the button while the clip is being recorded.



5.1 Audio Input

Use a PC-type microphone or headset to inject audio into the recordings.
Use the PC audio input controls to adjust input type and volume.

The ***DVCi*** will automatically record any audio input via the motherboard.



Line in to PC
Line out / headphones
Mic. in to PC

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5.2 Focus Controls

The ***DVCi*** defaults to automatic focusing.
However, manual focus can also be selected if preferred by sliding the OFF button to change it to ON.
The +/- buttons are used to change the focus.

Main screen with Manual focus selected

5.3 Zoom Controls

Zoom level is adjusted using the +/- buttons.

Level 0x gives a wide angle view.
Level 1x gives an equivalent view to a standard lens.
Subsequent levels give telephoto views.

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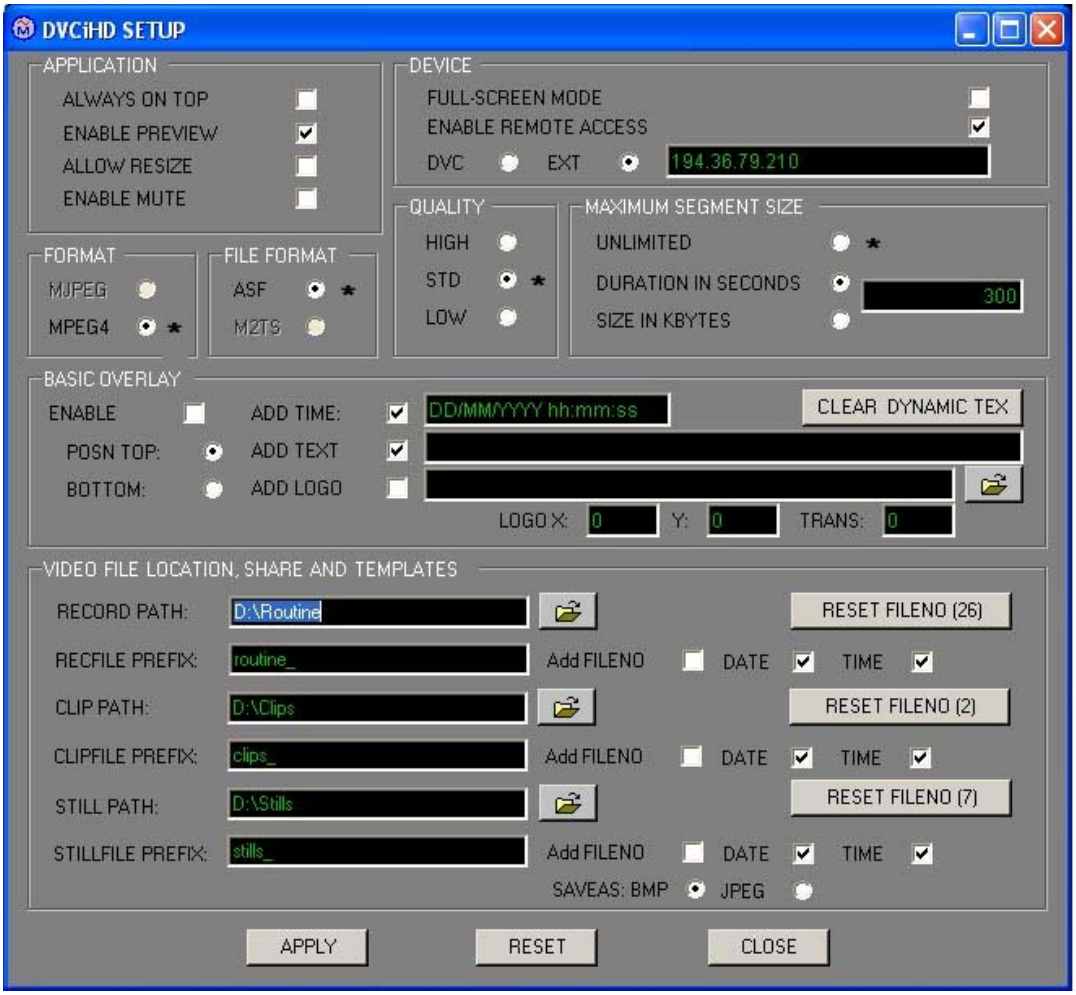
6. Software Settings

Click on the Setup icon to access the set-up page.

In the set-up page the user can select:

- video quality (by experiment / customer specification
- where files are to be saved
- what the file names should be.



A description of some of the parameters in the set-up screen is given below:

Application:

Always on top	Keeps the video recorder display on top of any other windows that may be open.
Enable Preview	Automatically starts the live video on start-up

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Device:
Enable Remote Access Allows network control

Quality:
This section allows the selection of bit rate – as specified in procedure or by experiment.

Maximum Segment Size:
Each section of video recorded can be broken down into discreet video clips to aid reviewing and managing the files. These sizes of each clip can be set by time or volume of data. Should you wish to be able to download a file to a certain type of media e.g. a floppy disc, then you would select file size as the controlling factor and set the size to fit your disc.

If on the other hand you wish to store the video by time then select that option and put in the number of seconds you want the file to be.

The size of file chosen will depend very much on the project in hand, but should probably be no less than 5 minutes; otherwise the number of files recorded may become excessive and difficult to manage.

Video File Location, Share and Templates:

Record Path	This is the location that your video files will be stored. The default location is “D\Routine”
Recfile Prefix	Adds a chosen name or auto variable to the video file. Select “?” for a list of auto name options.
Add FILENO	Adds an incrementing file number to each file created.
Date	Adds the current date to the file name
Time	Adds the current time to the file name
Reset FILENO	Reset sequential numbers to zero (currently 26 in the example shown)
Clip Path	Select the location where video clips will be stored. The default location is “D\Clips”
Clip Path Prefix	Add a chosen name/prefix to video clips.
Add FILENO, date, time	Adds an incrementing number, current date and current time to the file name for video clips.
Reset FILENO	Reset sequential numbers to zero (currently 2 in the example shown)
Still Path	Select the location where still image grabs will be stored. The default location is “D\Stills”
Still File Prefix	Add a chosen name/name to still image grabs.
Jpeg quality	Select the required quality for still image grabs.
Add FILENO, date, time	Adds an incrementing number, current date and current time to the file name for video grabs
Reset FILENO	Reset sequential numbers to zero (currently 7 in the example shown.)

NOTE: IT IS IMPORTANT TO CLICK APPLY SO THAT ANY CHANGES ARE SAVED.

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7. How to contact NETmc Marine Support

Should any problems occur with your ***Four263 DVR*** that are not addressed by this manual please contact our Support Team:

Email: support@netmcmarine.co.uk.

Tel: +44 1771 644001

Should your call be outside office hours, please leave a message on the answering machine, which will be forwarded to one of the support engineers. Although we cannot guarantee 24/7 availability, we endeavour to respond as quickly as possible to any query – regardless of when the support call is made.

Notes:

1. Whilst every effort has been made to ensure that the information contained in this manual is accurate, no liability can be accepted for errors and omissions.

2. Should this product be modified in any way by anyone other than a qualified NETmc Marine employee, then NETmc Marine cannot be held liable for any consequences.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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Appendix 1

Technical Specifications – DVCi Topbox

Power Requirements	85-264 Vac, 50-60 Hz
Power Consumption	120 w
Operating Temperature	10 - 35 Degrees
Non-operating Temperature	-10 - 60 Degrees
Operating Humidity	5-95% RH non-condensing
Non-operating Humidity	5-95% RH non-condensing
Operating Shock	65G, 2ms
Non-operating Shock	250G, 2ms
Operating Altitude	-305m – 3,050m
Non-operating Altitude	-305m – 12.200m
Operating Vibration	Linear 20-300Hz, 0.75G (0 to peak) Random 10-300 Hz, 0.004g2/Hz
Non-operating Vibration	Low frequency 5-20 Hz, 0.195 inches (double amplitude) High frequency 10-300Hz, 5.0G (0 to peak)
Dimensions	482mm (W) x 44mm (H) x 365mm (D) (1U rack-mount chassis)
Weight	8.65kg (topside and camera)
Network Support	10/100/1000 Base T
Video Rate	MPEG4 1-3 Mbps
Audio	Analog stereo line input / PC mic
Internal hard drive	500GB
External connections	USB 2.0 (1 front, 4 rear) USB 3.0 (2 rear) VGA, DVI, HDMI, Audio out

Storage and shipping

After overnight road freight the units should be left at room temperature for 24 hours before powering on.

After air freighting the units should be left at room temperature for 48 hours before powering on.

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Technical Specifications – DVCi camera

Power Requirements	8 to 20 V DC
Power Consumption	6W
Dimensions	85mm diameter, 2.55mm long excluding connector
Weight	In Air: 1.4kg In Water: 0.8kg
HD video output	Ethernet / Twisted copper pair
Sensor type	1/3-type CMOS
Optical zoom	10x optical zoom
Focus Control	10mm to 800mm (zoom)
Pressure Test	166.86 Bar

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